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IS 7133 (1985): Cotton Tyre Cord and Warp Sheet for Cycle and Rickshaw [TXD 33: Industrial Fabrics]

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AMENDMENT NO. 1 JULY 2003
TO
IS 7133 : 1985 SPECIFICATION FOR COTTON TYRE CORD AND WARP SHEET FOR CYCLE AND RICKSHAW

(First Revision)

(*Page* 1, *Table* 1, *Variety No.* 1, *col* 9, *Ply folding* 2 × 2) — Substitute '220' *for* '205'.

(*Page* 1, *Table* 1, *Variety No.* 1, *col* 10) — For 4 fold ply folding the thickness shall be '0.53' and for 2 × 2 ply folding the thickness shall be '0.60'.

(TX 30)

Reprography Unit, BIS, New Delhi, India

UDC 677·21·072·6 : 629·118·3·012·553·1

IS : 7133- 1985

Indian Standard

SPECIFICATION FOR COTTON TYRE CORD AND WARP SHEET FOR CYCLE AND RICKSHAW

(*First Revision*)

1. Scope — This standard prescribes the requirements of grey cotton tyre cords and warp sheet for cycle and rickshaw tyres. Variety No. 1 is used for light duty and Variety No. 2 is used for heavy duty.

2. Terminology

2.1 *Cord* — A plied or cabled thread suitable for reinforcement of tyres.

2.2 *Tyre Cord Fabric* (*Warp Sheet*) — A fabric consisting of tyre cord warp with widely spaced weft threads.

3. Manufacture — Cord shall be well and evenly twisted and shall be reasonably free from defects, such as knots, slubs, projections, that would affect the serviceability of the cord.

4. Requirements — The requirements of cotton tyre cord and warp sheet for cycle and rickshaw shall be as given in Table 1.

TABLE 1 REQUIREMENTS OF COTTON TYRE CORD AND WARP SHEET FOR CYCLE AND RICKSHAW TYRES

Variety No.	Cord					Warp Sheet			
	Ply folding	Nominal yarn count in Tex (cotton count)	Cord breaking load on 250 mm test length, Minimum	Elongation at		Nominal threads per dm		Mass Minimum	Thickness
				13 N Load	22 N Load	Ends	Picks		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
			N	Percent	Percent			g/m^2	mm
1.	4 fold or 2 × 2	42(14s)	20	7·5 (For 4 fold) 8·5 (For 2 × 2)	—	118	7	205	0·6
2.	2 × 4	42(14s)	44	—	12	118	7	460	0·75
Tolerance	—	—	—	± 2·0 percent	± 3·0 percent	—	—	—	±0·05mm
Method of Test	—	IS : 1315-1977*	IS : 4910 (Part 2)- 1968†	IS : 4910 (Part 2)- 1968†	—	—	—	—	IS : 4910 (Part 8)- 1970‡

Note 1 — Alternate constructions in counts, ends and picks/dm are permissible without detriment to the casing strength (see IS : 2414-1969 ['Specification for cycle tyres (*first revision*)'] and breaking strength of the cord and minimum requirements for thickness.

Note 2 — 1 N (Newton) is approximately equal to 0·102 kgf.

*Method for determination of linear density of yarns spun on cotton system (*first revision*).

†Methods of test for tyre yarns, cords and tyre cord fabrics made from man-made fibres : Part 2 Breaking load elongation at break and tenacity.

‡Methods of test for tyre yarns, cords and tyre cord fabrics made from man-made fibres : Part 8 Thickness (gauge).

4.1 In case tyre cord is supplied in warp sheets form the requirements of tyre cord shall be tested after removal of the same from the warp sheet.

5. Marking

5.1 Each warp sheet shall be accompanied by a label stating the following:

a) Name of the material,

b) Variety No. or ply folding, and

c) Length and width of warp sheet.

Industrial Textiles Sectional Committee, TDC 49 Tyre Cord Yarn and Warp Sheet Subcommittee, TDC 49 : 4 [Ref: Doc : TDC 49(2166) F]

Adopted 10 January 1985

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5.2 *ISI Certification Marking* — Details available with the Indian Standards Institution.

6. Packing — Unless otherwise specified, the warp sheet of tyre cord shall be packed as given in **6.1** and **6.2**. If only tyre cord is supplied then the same shall be packed as agreed to between the buyer and the seller.

6.1 Warp sheet shall be rolled round on a smooth flanged wooden roller in order to protect the edges of the warp sheets.

6.2 Outer layer of warp sheets to be covered with one layer of polyethyene film of 40 microns thickness [*see* IS : 2508-1984 'Specification for low density polyethylene film (*second revision*)'] and finally wrapped in one layer of hessian conforming to Type I of IS : 2818 (Part 2)-1971 'Specification for Indian hessian (*first revision*)' or any sacking cloth. The hessian/sacking cloth shall be securely sewn with at least 12 stitches per decimeter having an overlap of at least 10 cm.

7. Sampling

7.1 *Lot* — All the rolls of warp sheets of the same variety belonging to a consignment shall constitute a lot.

7.2 *Scale of Sampling* — Test specimens shall be sampled from each lot for determination of various characteristics of cord and warp sheet. In order that the test specimens selected be representative of the lot, they shall be distributed over the rolls in the lot. Unless otherwise agreed to between the buyer and the seller, the number of rolls to be taken from a lot for the purpose shall depend upon the size of the lot and be in accordance with Table 2.

TABLE 2 NUMBER OF ROLLS TO BE CHOSEN FROM A LOT

Lot Size (1)	No. of Rolls to be Chosen (2)
2 to 15	2
16 to 25	3
26 to 50	5
51 to 100	8
101 and above	13

7.3 The roll shall be selected at random from the lot. In order to ensure the randomness of selection, procedures given in IS : 4905-1968 'Methods for random sampling' may be followed.

7.4 From each of the roll selected one test specimen shall be prepared for determining the various characteristics.

7.5 Unless otherwise agreed to between the buyer and the seller, 10 cords per roll subject to a minimum of 30 for ply, count elongations and breaking load shall be taken and for warp sheet, two test specimen per roll subject to a minimum of 5, shall be taken for mass, thickness and the nominal threads per dm.

8. Criteria of Conformity

8.1 For ascertaining the conformity of the lot to the specification requirements, the following procedure shall be adopted. From the test results the range (R) and average ($\bar{x}$) shall be calculated, the range being the difference between the maximum and minimum values of the test results and

$$\text{Average } (\bar{x}) = \frac{\text{Sum of the test results}}{\text{No. of tests}}$$

a) *For One sided Specification Limit* — The lot shall be declared as conforming to the specification if :

the value of the expression ($\bar{x} - 0{\cdot}5R$) or ($\bar{x} - 0{\cdot}5\bar{R}$) is greater than or equal to the minimum value specified, and

b) *For Two Sided Specification Limits* — The lot shall be declared as conforming to the specification if :

the value of the expression $R/(U - L)$ or $\bar{R}/(U - L) \leq 0{\cdot}9$ and the value of the expression $(\bar{x} - 0{\cdot}5R) \geqslant L$ or $(\bar{x} + 0{\cdot}5R) \leq U$ where U is the upper specification limit and L is the lower specification limit.

Note — In case the number of test results is 10 or more, they shall be divided into subgroups of five test results each, taking them in the same order as obtained. The range of each subgroup there shall be calculated and mean range ($\bar{R}$) shall be calculated by dividing the sum of the ranges by the number of subgroups.

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